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AUG 25 2008

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REMARKS

Claims 1-22 are presently in the application. The application, as originally filed, had 9 claims. Previously submitted Claims 10 – 13 were added via a prior amendment. New claims 14-22 were added to claim an isotropic thick film made from the composition of Claim 1 and have been withdrawn from consideration, as directed to a patently distinct invention. New Claims 23, 24 and 25 are added. (Support for these is in the specification at p. 7.)

REJECTION UNDER 35 USC 103

Claims 1, 4-9, 11 and 13 were rejected as obvious over Topfer et al. (Translated article: Preparation and Properties of Nd-Fe-B Thick Layers for Magnetic Standards). The Topfer article is cited as teaching a composition for forming a magnetic thick film comprising magnetic particles of NdFeB dispersed in an organic medium containing a polymer epoxy resin and solvent).

Regarding the limitation in applicant's claim 1 that the polymer be selected from polyurethane or phenoxy, although Topfer only recites the use of epoxy resin in the polymer in the magnetic composition, the Examiner asserts that it would have been within the skill of one skilled in the art to have recognized that other polymer materials could be suitable for magnetic compositions such as Topfer's. Regarding the limitation in applicants' Claim 4, the Examiner asserts that Topfer teaches that magnetic particles can be contained in the composition in amount of 65% by weight and that organic medium would be likely to be 35%, as is within the range as in applicant's Claim 5. Regarding the limitations in applicants' Claims 6, 7 and 11, related to screen printing, removal of solvent and treatment for orientation, the Examiner asserts that these procedures are either known from Topfer or within the skill of those skilled in the art to devise from Topfer.

Claims 2, 3 and 12 are rejected as unpatentable under 35 USC 103(a) over a Topfer et al. and a Benz et al. article. The Examiner asserts that Topfer teaches the composition of the instant invention but is silent as to the additives of metal used with NdFeB magnetic material. The Examiner argues that it would be within the ordinary skill to have recognized that additives of any metal that is known to be used with NdFeB magnetic materials could be employed in the composition of Topfer with a reasonable expectation of success. Cobalt and Chromium are cited as taught by Benz. The Examiner asserts that absent a teaching of the criticality of the additive materials, there is no distinction over the art. Present Claim 2 does not include the Cobalt or chromium taught by Benz and neither Topfer nor Benz teach an

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isotropic film, as in current claims 1 and 2.

Applicant again respectfully disagrees that the invention is obvious over the citations for the reasons detailed below. While the cited references disclose that magnetic powder may be selected from powders in the Al-Ni-Co system, alkaline earth system, the Sm-Co system, and the Nd-Fe-B system, the magnetic particles taught in the cited references differ from the magnetic particles of the present invention in several ways. First, as mentioned previously, the magnetic field used to magnetize the particles of cited references has been applied in one particular direction/orientation to the present particles. In the present invention, the magnetic Nd-Fe-B or Neo powders used in the film composition "... as printed, can be **isotropic** in nature such that the direction of any subsequently applied magnetic field can be applied in any direction appropriate to the shape and thickness of the film. This isotropic limitation has now been added to claim 1. This property of magnetic isotropy is aided when these Neo powders are specifically used." (p. 9, ln. 35-p. 10, ln. 1). Furthermore, the Ne-Fe-B powders of the present invention may be formed by a dry-milling or atomization process that gives rise to a novel polymer thick film, when printed, which is isotropic in nature (See Examples 1 and 2). The thick films themselves, made from the compositions of Claims 1 and sequential claims, have been claimed herein in Claims 14-17 and in Claims 20-22, now withdrawn from consideration.

Topfer describes a thick film formed by screen printing NdFeB powders in organic medium which includes epoxy resin and solvent. The compositional ranges overlap present applicant's compositional and thickness ranges. However, there are some differences: Topfer is using epoxy; applicant is not. Applicant had specifically identified phenoxy and polyurethane polymers due to their properties (see the specification at p. 6). This special selection allows for the manufacture of a composition with a maximized viscosity but with a minimum polymer content. Applicant's invention further allows for maximum handling and durability during the manufacturing process. Support for this is found on p. 6. Furthermore the present polymers allow for high volume screen-printing suited to web type or reel-to reel high volume screen printing. See the spec. on p. 7. None of these features are taught by the Topfer or the Benz reference.

Other differences between the present claims and those of the art are that the present Neo particles are capable of containing powders with relatively coarse particle size distributions and low surface areas due to the potential for pyrophoric reactions of such powder in air if milled to particle size distributions typical of other polymer thick film inks containing Ag particles and the like (See spec. p. 11, ll. 11-15). Topfer teaches an average

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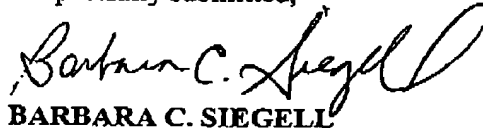
particle size distribution of 10 microns (p. 3 of the translation). Topfer does not teach applicant's range and has not tried to overcome our problem, as noted above. We have added the particle size distribution ranges from the examples to Claim 1, as follows: "wherein said permanent magnetic materials have a D50 particle size distribution in the range of 36.4 to 63.2 microns".

A further difference between the current application and the references is stated in the current application at page 3, lines 34-38: "In addition to depositions of a variety of screen printed patterns may be used to not only result in a patterning of the print within the two-dimensional plane of the printed substrate, but subsequent prints can be made of different patterns such that a three dimensional construct can be made."

In view of the above amendments and discussion, reconsideration of the non-final rejection is solicited and allowance of Claims 1-13 and new claims 23-27, as amended, is respectfully requested.

Should anything further be required to advance allowance of this application, the Examiner is urged to contact applicants' attorney at the telephone number below. Should there be any fee required in connection with the filing of this amendment, please charge such fee to Deposit Account No. 04-1928 (E. I. du Pont de Nemours and Company).

Respectfully submitted,



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